

REMARKS

Claims 21-26 and 28-32 are pending in this application, claim 27 having been cancelled by this amendment. Reconsideration in view of the following amendments and remarks is kindly requested.

Claim Rejections – 35 U.S.C. §112

Pending claims 21-32 were rejected under the second paragraph of 35 U.S.C. §112 as allegedly being vague and indefinite. Applicants have amended claims 21, 29, 31 and 32 in an effort to comply with the second paragraph of 35 U.S.C. §112, taking into account the Examiner's suggestions and comments, so as to be consistent with the specification and Fig. 3.

Claim Rejections – 35 U.S.C. §103

Claims 21-32 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over any of Aoyama et al. (USP 5,432,829), Orii et al. (USP 6,735,267) or Koyama et al. (USP 6,335,956) in view of Ueda et al. (USP 5,068,082) alone or with either Bender et al. (USP 6,600,800) or Ogiya et al. (USP 4,968,479). This rejection is respectfully traversed.

As to claim 21, Applicants submit none of Aoyama et al., Orii et al. or Koyama et al. teach or suggest of a fuel bundle for a boiling water reactor, comprising, at least:

a plurality of fuel rods including full-length rods and part-length rods within the tube around the water passages, the part-length rods further comprising:

a first part-length rod group including two short-length fuel rod subsets in a mirror-image along the centerline between the two water passages, each subset further comprising three short-length fuel rods in a triangular orientation with one rod of the subset closer to the longitudinal centerline between the two water passages than the other two rods, the one rod in direct adjacent relation to the other two rods of the subset, and

a second part-length rod group including four pairs of intermediate-length rods, each intermediate-length rod pair centrally located in the outermost row of the 10x10 or 9x9 matrix adjacent a corresponding one of the four sides of the chamber. (underlining for emphasis)

In Orie et al. (FIG. 17 appears most relevant), there is shown only short rods in a paired-facing relationship, with short rod pairs centrally located on each side of the channel.

There is thus no teaching of a first part-length rod group with two short-length fuel rod subsets, each subset comprised of three short-length rods in a triangular orientation with one rod of the subset closer to the longitudinal centerline between the outer passages than the other two rods [see Fig. 3], the one rod in direct adjacent relation to the other two rods of the subset. There is further no teaching in combination with the above arrangement of short-fuel rod subsets as claimed, of a second part-length rod group including four pairs of intermediate-length rods, each intermediate-length rod pair centrally located in the outermost row at the 10x10 or 9x9 matrix adjacent to a corresponding one of the four sides of the tube.

It is alleged that Applicants have not shown how the 3-rod group is functionally distinct from the 2-rod group, or that the 2-rod group is an obvious variant. This is not the test for obviousness. The Examiner has merely inserted his own opinion, viewing the claimed invention in hindsight, in alleging that it would be obvious to one of ordinary skill in the art to utilize the aforementioned arrangement in the Orie et al. Orie et al does not provide any such teaching or suggestion. Use of such hindsight reconstruction is improper and ignores specific limitations of the claims (MPEP 2143.03). Therefore, Orie et al. is inapplicable to amended claim 21 for at least these reasons.

Of the figures relied on by the Examiner in Koyama et al. (FIGS. 1, 3, 9, 11-14), none teach or suggest either of the above features in claim 21.

In the most relevant figure of Aoyama et al. (FIG. 14), there is shown only partial-length rods in a paired-facing relationship on either side of three water passages, with partial-length rod pairs centrally located on each side of the channel. There is no indication as to whether the part-length rods include a combination of short and intermediate fuel rods as recited in amended claim 21. Aoyama et al. is inapplicable to amended claim 21 for at least these reasons.

The Examiner relies on numerous figures in Ueda et al. (FIGS. 6, 8, 10, 19, 29, 32, 40-42, 44, 46, 47, 49, 50, 56, 60, 63, 68 and 69) to allege that it is well known to provide two groups of part-length rods with the longer group positioned next to the channel wall

and the shorter group positioned proximate the water rods (Final OA of May 4, 2005, page 4). Bender et al. and Ogiya et al. were merely cited for a teaching of placing short rods near a water channel and intermediate rods near a chamber boundary.

However, amended claim 21 does not recite a general structure or arrangement of rods within a fuel bundle as taught in Ueda et al. Claim 21 recites a specific fuel rod arrangement that further defines the orientation and arrangement of short-length rods and intermediate-length rods.

Absent the Examiner finding this specific recited configuration in Ueda et al., (only FIGS. 19 and 68 are relevant, showing four partial-length fuel rod subsets arranged around a single water channel), Ueda et al. fail to cure the deficiencies present in each of Orii et al., Koyama et al. and/or Aoyama et al. For at least this additional reason, claim 21 is allowable over the art of record, as the combination of references fail to teach each and every feature recited in amended claim 21. **Should the Examiner be of the opinion that claim 21 requires further clarification of the claim language, Applicants welcome the Examiner's comments and suggestions.**

Claims 22-28 are allowable by virtue of their dependency on claim 21, submitted to be in condition for allowance.

Claim 29 recites, inter alia, wherein the "10X10 fuel-rod matrix includes six short-rods comprising two three-rod subsets in mirror image relationship with one another along the longitudinal centerline between the two water passages, the short-length rods in each subset configured in a triangular orientation and directly adjacent to the pair of water passages" such that one rod of the 3-rod subset is closer to the centerline than the other two rods and directly adjacent to the other two rods. Absent the Examiner finding this specific claimed configuration in the cited references (which Applicants submit do not exist in any of the cited references) claim 29 is allowable over the art of record, at least for the above-noted features. Claim 30 is allowable by virtue of its dependency on claim 29.

Claim 31 recites, inter alia, wherein the "9X9 fuel-rod matrix includes six short-rods consisting of two three-rod subsets in mirror image relationship with one another along the longitudinal centerline between the two water passages, the short-length rods in each subset configured in a triangular orientation and directly adjacent to the pair of

water passages” such that one rod of the 3-rod subset is closer to the centerline than the other two rods and directly adjacent to the other two rods. Absent the Examiner finding this specific claimed configuration in the cited references (which Applicants submit do not exist in any of the cited references) claim 31 is allowable over the art of record, at least for the above-noted features. Claim 32 is allowable by virtue of its dependency on claim 31.

CONCLUSION

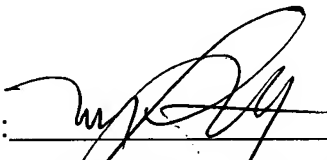
Accordingly, in view of the above remarks and amendments, reconsideration of all outstanding rejections and allowance of each of claims 21-26 and 28-32 in connection with the present application is earnestly solicited.

If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to contact the undersigned at (703) 668-8026 (direct).

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge any underpayment or non-payment of any fees required under 37 C.F.R. §§ 1.16 or 1.17, or credit any overpayment of such fees, to Deposit Account No. 08-0750, including, in particular, extension of time fees.

Respectfully submitted,

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